

Notice: Use this form to request a **written response (on agency letterhead)** from the Department of Natural Resources (DNR) regarding technical assistance, a post-closure change to a site, a specialized agreement or liability clarification for Property with known or suspected environmental contamination. A fee will be required as is authorized by s. 292.55, Wis. Stats., and NR 749, Wis. Adm. Code., unless noted in the instructions below. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records law [ss. 19.31 - 19.39, Wis. Stats.].

Definitions

"Property" refers to the subject Property that is perceived to have been or has been impacted by the discharge of hazardous substances.

"Liability Clarification" refers to a written determination by the Department provided in response to a request made on this form. The response clarifies whether a person is or may become liable for the environmental contamination of a Property, as provided in s. 292.55, Wis. Stats.

"Technical Assistance" refers to the Department's assistance or comments on the planning and implementation of an environmental investigation or environmental cleanup on a Property in response to a request made on this form as provided in s. 292.55, Wis. Stats.

"Post-closure modification" refers to changes to Property boundaries and/or continuing obligations for Properties or sites that received closure letters for which continuing obligations have been applied or where contamination remains. Many, but not all, of these sites are included on the GIS Registry layer of RR Sites Map to provide public notice of residual contamination and continuing obligations.

Select the Correct Form

This form should be used to request the following from the DNR:

- Technical Assistance
- Liability Clarification
- Post-Closure Modifications
- Specialized Agreements (tax cancellation, negotiated agreements, etc.)

Do not use this form if one of the following applies:

- Request for an **off-site liability exemption or clarification** for Property that has been or is perceived to be contaminated by one or more hazardous substances that originated on another Property containing the source of the contamination. Use DNR's Off-Site Liability Exemption and Liability Clarification Application Form 4400-201.
- Submittal of an Environmental Assessment for the **Lender Liability Exemption**, s 292.21, Wis. Stats., **if no response or review by DNR is requested**. Use the Lender Liability Exemption Environmental Assessment Tracking Form 4400-196.
- Request for an **exemption to develop on a historic fill site** or licensed landfill. Use DNR's Form 4400-226 or 4400-226A.
- **Request for closure** for Property where the investigation and cleanup actions are completed. Use DNR's Case Closure - GIS Registry Form 4400-202.

All forms, publications and additional information are available on the internet at: dnr.wi.gov/topic/Brownfields/Pubs.html.

Instructions

1. Complete sections 1, 2, 6 and 7 for all requests. Be sure to provide adequate and complete information.
2. Select the type of assistance requested: Section 3 for technical assistance or post-closure modifications, Section 4 for a written determination or clarification of environmental liabilities; or Section 5 for a specialized agreement.
3. Include the fee payment that is listed in Section 3, 4, or 5, unless you are a "Voluntary Party" enrolled in the Voluntary Party Liability Exemption Program **and** the questions in Section 2 direct otherwise. Information on to whom and where to send the fee is found in Section 8 of this form.
4. Send the completed request, supporting materials and the fee to the appropriate DNR regional office where the Property is located. See the map on the last page of this form. A paper copy of the signed form and all reports and supporting materials shall be sent with an electronic copy of the form and supporting materials on a compact disk. For electronic document submittal requirements see: <http://dnr.wi.gov/files/PDF/pubs/rr/RR690.pdf>

The time required for DNR's determination varies depending on the complexity of the site, and the clarity and completeness of the request and supporting documentation.

Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request

Form 4400-237 (R 12/18)

Page 2 of 7

Section 1. Contact and Recipient Information

Requester Information

This is the person requesting technical assistance or a post-closure modification review, that his or her liability be clarified or a specialized agreement and is identified as the requester in Section 7. DNR will address its response letter to this person.

Last Name	First	MI	Organization/ Business Name Superior Refining Company LLC
Mailing Address 2407 Stinson Avenue			City Superior
			State WI
			ZIP Code 54880
Phone # (include area code) (715) 398-8434	Fax # (include area code)	Email matthew.turner@cenovus.com	

The requester listed above: (select all that apply)

- Is currently the owner
 Is considering selling the Property
 Is renting or leasing the Property
 Is considering acquiring the Property
 Is a lender with a mortgagee interest in the Property
 Other. Explain the status of the Property with respect to the applicant:

Contact Information (to be contacted with questions about this request)

Select if same as requester

Contact Last Name Turner	First Matthew	MI	Organization/ Business Name Superior Refining Company LLC
Mailing Address 2407 Stinson Avenue			City Superior
			State WI
			ZIP Code 54880
Phone # (include area code) (715) 969-4873	Fax # (include area code)	Email matthew.turner@cenovus.com	

Environmental Consultant (if applicable)

Contact Last Name Carney	First Lynette	MI	Organization/ Business Name Barr Engineering Co
Mailing Address 325 S Lake Avenue, Suite 700			City Duluth
			State MN
			ZIP Code 55802
Phone # (include area code) (218) 529-7141	Fax # (include area code)	Email lcarney@barr.com	

Section 2. Property Information

Property Name Superior Refining Company LLC	FID No. (if known) 816009590
BRRTS No. (if known) 02-16-581317	Parcel Identification Number
Street Address 2407 Stinson Avenue	City Superior
	State WI
	ZIP Code 54880
County Douglas	Municipality where the Property is located <input checked="" type="radio"/> City <input type="radio"/> Town <input type="radio"/> Village of Superior
	Property is composed of: <input type="radio"/> Single tax parcel <input checked="" type="radio"/> Multiple tax parcels
	Property Size Acres 250

Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request

Form 4400-237 (R 12/18)

Page 3 of 7

1. Is a response needed by a specific date? (e.g., Property closing date) Note: Most requests are completed within 60 days. Please plan accordingly.

No Yes

Date requested by: _____

Reason:

2. Is the "Requester" enrolled as a Voluntary Party in the Voluntary Party Liability Exemption (VPLE) program?

No. **Include the fee that is required for your request in Section 3, 4 or 5.**

Yes. **Do not include a separate fee.** This request will be billed separately through the VPLE Program.

Fill out the information in Section 3, 4 or 5 which corresponds with the type of request:

Section 3. Technical Assistance or Post-Closure Modifications;

Section 4. Liability Clarification; or Section 5. Specialized Agreement.

Section 3. Request for Technical Assistance or Post-Closure Modification

Select the type of technical assistance requested: [Numbers in brackets are for WI DNR Use]

- No Further Action Letter (NFA) (Immediate Actions) - NR 708.09, [183] - **Include a fee of \$350.** Use for a written response to an immediate action after a discharge of a hazardous substance occurs. Generally, these are for a one-time spill event.
- Review of Site Investigation Work Plan - NR 716.09, [135] - **Include a fee of \$700.**
- Review of Site Investigation Report - NR 716.15, [137] - **Include a fee of \$1050.**
- Approval of a Site-Specific Soil Cleanup Standard - NR 720.10 or 12, [67] - **Include a fee of \$1050.**
- Review of a Remedial Action Options Report - NR 722.13, [143] - **Include a fee of \$1050.**
- Review of a Remedial Action Design Report - NR 724.09, [148] - **Include a fee of \$1050.**
- Review of a Remedial Action Documentation Report - NR 724.15, [152] - **Include a fee of \$350**
- Review of a Long-term Monitoring Plan - NR 724.17, [25] - **Include a fee of \$425.**
- Review of an Operation and Maintenance Plan - NR 724.13, [192] - **Include a fee of \$425.**

Other Technical Assistance - s. 292.55, Wis. Stats. [97] (For request to build on an abandoned landfill use Form 4400-226)

- Schedule a Technical Assistance Meeting - **Include a fee of \$700.**
- Hazardous Waste Determination - **Include a fee of \$700.**
- Other Technical Assistance - **Include a fee of \$700.** Explain your request in an attachment.

Post-Closure Modifications - NR 727, [181]

- Post-Closure Modifications: Modification to Property boundaries and/or continuing obligations of a closed site or Property; sites may be on the GIS Registry. This also includes removal of a site or Property from the GIS Registry. **Include a fee of \$1050, and:**
 - Include a fee of \$300 for sites with residual soil contamination; and
 - Include a fee of \$350 for sites with residual groundwater contamination, monitoring wells or for vapor intrusion continuing obligations.

Attach a description of the changes you are proposing, and documentation as to why the changes are needed (if the change to a Property, site or continuing obligation will result in revised maps, maintenance plans or photographs, those documents may be submitted later in the approval process, on a case-by-case basis).

Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request

Form 4400-237 (R 12/18)

Page 4 of 7

Skip Sections 4 and 5 if the technical assistance you are requesting is listed above and complete Sections 6 and 7 of this form.

Section 4. Request for Liability Clarification

Select the type of liability clarification requested. Use the available space given or attach information, explanations, or specific questions that you need answered in DNR's reply. Complete Sections 6 and 7 of this form. **[Numbers in brackets are for DNR Use]**

"Lender" liability exemption clarification - s. 292.21, Wis. Stats. [686]

❖ **Include a fee of \$700.**

Provide the following documentation:

- (1) ownership status of the real Property, and/or the personal Property and fixtures;
- (2) an environmental assessment, in accordance with s. 292.21, Wis. Stats.;
- (3) the date the environmental assessment was conducted by the lender;
- (4) the date of the Property acquisition; for foreclosure actions, include a copy of the signed and dated court order confirming the sheriff's sale.
- (5) documentation showing how the Property was acquired and the steps followed under the appropriate state statutes.
- (6) a copy of the Property deed with the correct legal description; and,
- (7) the Lender Liability Exemption Environmental Assessment Tracking Form (Form 4400-196).
- (8) If no sampling was done, please provide reasoning as to why it was **not** conducted. Include this either in the accompanying environmental assessment or as an attachment to this form, and cite language in s. 292. 21(1)(c)2.,h.-i., Wis. Stats.:
 - h. The collection and analysis of representative samples of soil or other materials in the ground that are suspected of being contaminated based on observations made during a visual inspection of the real Property or based on aerial photographs, or other information available to the lender, including stained or discolored soil or other materials in the ground and including soil or materials in the ground in areas with dead or distressed vegetation. The collection and analysis shall identify contaminants in the soil or other materials in the ground and shall quantify concentrations.
 - i. The collection and analysis of representative samples of unknown wastes or potentially hazardous substances found on the real Property and the determination of concentrations of hazardous waste and hazardous substances found in tanks, drums or other containers or in piles or lagoons on the real Property.

"Representative" liability exemption clarification (e.g. trustees, receivers, etc.) - s. 292.21, Wis. Stats. [686]

❖ **Include a fee of \$700.**

Provide the following documentation:

- (1) ownership status of the Property;
- (2) the date of Property acquisition by the representative;
- (3) the means by which the Property was acquired;
- (4) documentation that the representative has no beneficial interest in any entity that owns, possesses, or controls the Property;
- (5) documentation that the representative has not caused any discharge of a hazardous substance on the Property; and
- (6) a copy of the Property deed with the correct legal description.

Clarification of local governmental unit (LGU) liability exemption at sites with: (select all that apply)

- hazardous substances spills - s. 292.11(9)(e), Wis. Stats. [649];
- Perceived environmental contamination - [649];
- hazardous waste - s. 292.24 (2), Wis. Stats. [649]; and/or
- solid waste - s. 292.23 (2), Wis. Stats. [649].

❖ **Include a fee of \$700, a summary of the environmental liability clarification being requested, and the following:**

- (1) clear supporting documentation showing the acquisition method used, and the steps followed under the appropriate state statute(s).
- (2) current and proposed ownership status of the Property;
- (3) date and means by which the Property was acquired by the LGU, where applicable;
- (4) a map and the ¼, ¼ section location of the Property;
- (5) summary of current uses of the Property;
- (6) intended or potential use(s) of the Property;
- (7) descriptions of other investigations that have taken place on the Property; and
- (8) (for solid waste clarifications) a summary of the license history of the facility.

Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request

Form 4400-237 (R 12/18)

Page 5 of 7

Section 4. Request for Liability Clarification (cont.)

Lease liability clarification - s. 292.55, Wis. Stats. [646]

❖ **Include a fee of \$700 for a single Property, or \$1400 for multiple Properties and the information listed below:**

- (1) a copy of the proposed lease;
- (2) the name of the current owner of the Property and the person who will lease the Property;
- (3) a description of the lease holder's association with any persons who have possession, control, or caused a discharge of a hazardous substance on the Property;
- (4) map(s) showing the Property location and any suspected or known sources of contamination detected on the Property;
- (5) a description of the intended use of the Property by the lease holder, with reference to the maps to indicate which areas will be used. Explain how the use will not interfere with any future investigation or cleanup at the Property; and
- (6) all reports or investigations (e.g. Phase I and Phase II Environmental Assessments and/or Site Investigation Reports conducted under s. NR 716, Wis. Adm. Code) that identify areas of the Property where a discharge has occurred.

General or other environmental liability clarification - s. 292.55, Wis. Stats. [682] - Explain your request below.

❖ **Include a fee of \$700 and an adequate summary of relevant environmental work to date.**

No Action Required (NAR) - NR 716.05, [682]

❖ **Include a fee of \$700.**

Use where an environmental discharge has or has not occurred, and applicant wants a DNR determination that no further assessment or clean-up work is required. Usually this is requested after a Phase I and Phase II environmental assessment has been conducted; the assessment reports should be submitted with this form. This is not a closure letter.

Clarify the liability associated with a "closed" Property - s. 292.55, Wis. Stats. [682]

❖ **Include a fee of \$700.**

- Include a copy of any closure documents if a state agency other than DNR approved the closure.

Use this space or attach additional sheets to provide necessary information, explanations or specific questions to be answered by the DNR.

Section 5. Request for a Specialized Agreement

Select the type of agreement needed. Include the appropriate draft agreements and supporting materials. Complete Sections 6 and 7 of this form. More information and model draft agreements are available at: dnr.wi.gov/topic/Brownfields/Igu.html#tabx4.

Tax cancellation agreement - s. 75.105(2)(d), Wis. Stats. [654]

❖ **Include a fee of \$700, and the information listed below:**

- (1) Phase I and II Environmental Site Assessment Reports,
- (2) a copy of the Property deed with the correct legal description.

Agreement for assignment of tax foreclosure judgement - s.75.106, Wis. Stats. [666]

❖ **Include a fee of \$700, and the information listed below:**

- (1) Phase I and II Environmental Site Assessment Reports,
- (2) a copy of the Property deed with the correct legal description.

Negotiated agreement - Enforceable contract for non-emergency remediation - s. 292.11(7)(d) and (e), Wis. Stats. [630]

❖ **Include a fee of \$1400, and the information listed below:**

- (1) a draft schedule for remediation; and,
- (2) the name, mailing address, phone and email for each party to the agreement.

Technical Assistance, Environmental Liability
Clarification or Post-Closure Modification Request

Form 4400-237 (R 12/18)

Page 6 of 7

Section 6. Other Information Submitted

Identify all materials that are included with this request.

Send both a paper copy of the signed form and all reports and supporting materials, and an electronic copy of the form and all reports, including Environmental Site Assessment Reports, and supporting materials on a compact disk.

Include one copy of any document from any state agency files that you want the Department to review as part of this request. The person submitting this request is responsible for contacting other state agencies to obtain appropriate reports or information.

- Phase I Environmental Site Assessment Report - Date: _____
- Phase II Environmental Site Assessment Report - Date: _____
- Legal Description of Property (required for all liability requests and specialized agreements)
- Map of the Property (required for all liability requests and specialized agreements)

Analytical results of the following sampled media: Select all that apply and include date of collection.

- Groundwater
- Soil
- Sediment
- Other medium - Describe: _____

Date of Collection: _____

- A copy of the closure letter and submittal materials
- Draft tax cancellation agreement
- Draft agreement for assignment of tax foreclosure judgment
- Other report(s) or information - Describe: _____

For Property with newly identified discharges of hazardous substances only: Has a notification of a discharge of a hazardous substance been sent to the DNR as required by s. NR 706.05(1)(b), Wis. Adm. Code?


- Yes - Date (if known): _____
- No

Note: The Notification for Hazardous Substance Discharge (non-emergency) form is available at:
dnr.wi.gov/files/PDF/forms/4400/4400-225.pdf.

Section 7. Certification by the Person who completed this form

- I am the person submitting this request (requester)
- I prepared this request for: _____
Requester Name

I certify that I am familiar with the information submitted on this request, and that the information on and included with this request is true, accurate and complete to the best of my knowledge. I also certify I have the legal authority and the applicant's permission to make this request.



Signature

9/7/21

Date Signed

Environmental Technologist

Title

(715) 969-4873

Telephone Number (include area code)

Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request

Form 4400-237 (R 12/18)

Page 7 of 7

Section 8. DNR Contacts and Addresses for Request Submittals

Send or deliver one paper copy and one electronic copy on a compact disk of the completed request, supporting materials, and fee to the region where the property is located to the address below. Contact a [DNR regional brownfields specialist](#) with any questions about this form or a specific situation involving a contaminated property. For electronic document submittal requirements see: <http://dnr.wi.gov/files/PDF/pubs/rr/RR690.pdf>.

DNR NORTHERN REGION

Attn: RR Program Assistant
Department of Natural Resources
223 E Steinfest Rd Antigo, WI 54409

DNR NORTHEAST REGION

Attn: RR Program Assistant
Department of Natural Resources
2984 Shawano Avenue
Green Bay WI 54313

DNR SOUTH CENTRAL REGION

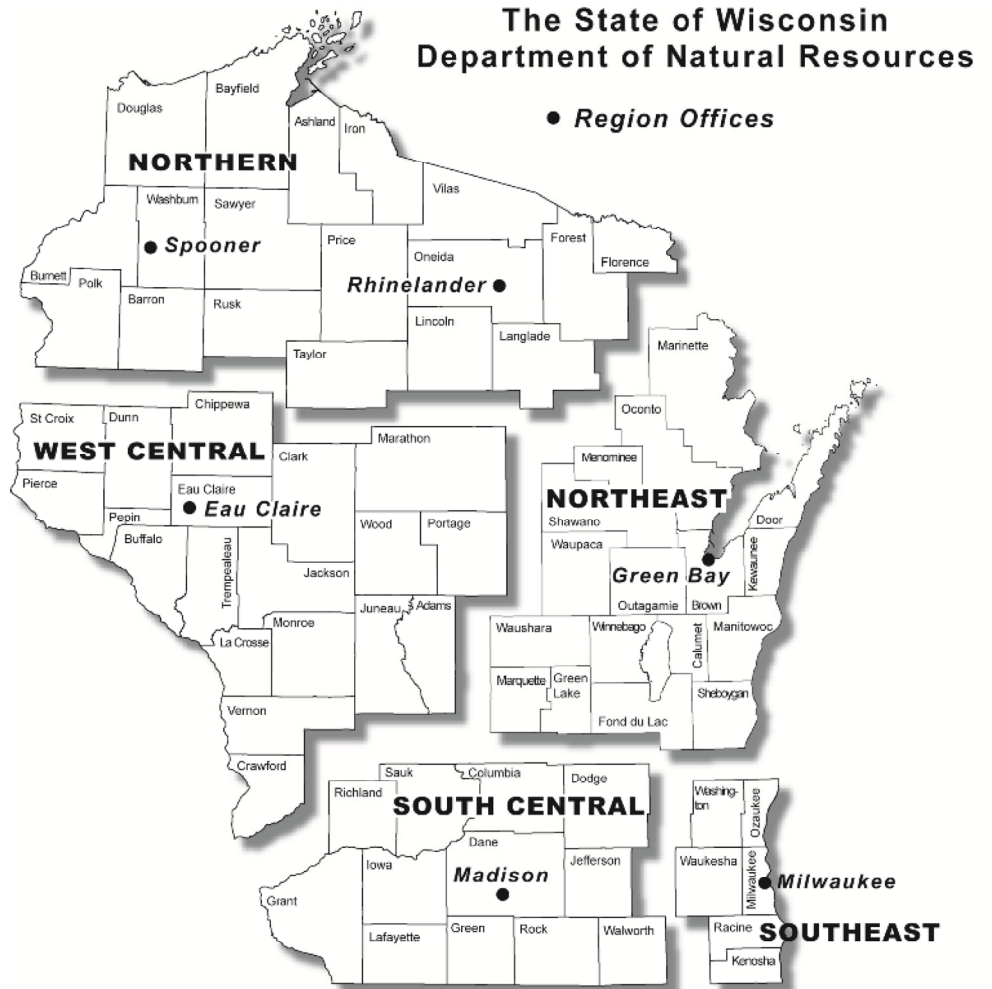
Attn: RR Program Assistant
Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg WI 53711

DNR SOUTHEAST REGION

Attn: RR Program Assistant
Department of Natural Resources
2300 North Martin Luther King Drive
Milwaukee WI 53212

DNR WEST CENTRAL REGION

Attn: RR Program Assistant
Department of Natural Resources
1300 Clairemont Ave.
Eau Claire WI 54702



Note: These are the Remediation and Redevelopment Program's designated regions. Other DNR program regional boundaries may be different.

DNR Use Only			
Date Received	Date Assigned	BRRTS Activity Code	BRRTS No. (if used)
DNR Reviewer		Comments	
Fee Enclosed? <input type="radio"/> Yes <input type="radio"/> No	Fee Amount \$	Date Additional Information Requested	Date Requested for DNR Response Letter
Date Approved	Final Determination		

PFAS Soil Investigation Work Plan – Supplement A

Superior Refinery April 26, 2018 Incident
BRRTS Number: 02-16-581317
September 2021

1.0 Work Plan Objective

The purpose of this work plan is to outline the approach for a supplemental investigation of per and polyfluoroalkyl substances (PFAS) impacts to soil as a result of the emergency response firefighting efforts for the April 26, 2018 Incident at the Superior Refinery (Site) (Figure 1). Superior Refining Company LLC (SRC) prepared this supplemental work plan in response to the Wisconsin Department of Natural Resources (WDNR) request for additional PFAS soil investigation in their letter response to the *Site Investigation Report Update* (SIRU) (Barr, 2021b) dated April 22, 2021 (WDNR, 2021).

This *PFAS Soil Site Investigation Work Plan (SIWP) - Supplement A* follows hydrocarbon and PFAS soil investigations associated with a release of hydrocarbons (asphalt, Therminol[®], #6 fuel oil in the Asphalt Tank Farm (ATF) and a range of asphalt to liquefied petroleum gases (LPGs) materials in the damaged process units) and Aqueous Film Forming Foam (AFFF) containing per- and polyfluoroalkyl substances (PFAS) during the Incident (Barr, 2021a and Barr, 2021b). As requested in the WDNR letter response to the SIRU (WDNR, 2021), this SIWP - Supplement A has been developed to further delineate the lateral extent of potential PFAS contaminated soil in the areas impacted by the Incident. As required by the WDNR, this SIWP – Supplement A has been developed following the requirements of NR 716 and, in particular, the site investigation scoping requirements in NR 716.07 and *Site Investigation Work Plan Checklist* (WDNR, 2019).¹

This SIWP – Supplement A outlines the following activities:

- Develop soil-to-groundwater residual contaminant levels (GW-RCLs) for soil delineation.
- Collect additional PFAS soil samples to delineate the perimeter of the Incident impacted areas where PFAS compounds were previously documented in soil; and

¹ This site investigation demonstrates SRC's willingness to work with the WDNR in the investigation and remediation of AFFF released during the Incident, in direct response to WDNR's position that SRC must take such actions under current legal obligations enforced by WDNR with respect to PFAS. SRC is taking these actions without waiving but expressly preserving its right to object to, challenge, or dispute WDNR's position in any regard under any existing or future asserted legal obligation as to any PFAS compounds.

- Collect/assess additional information necessary to complete the PFAS soil investigation.

2.0 Background Information

This work plan was developed as a supplement to the PFAS Soil SIWP (Barr, 2020b) and SIRU (Barr, 2021b). Therefore, pertinent information regarding the Incident, Site description, facility specific information, physical setting, most current conceptual site model (CSM), and additional background information required as part of a SIWP under NR 716.07 was previously provided in the initial PFAS SIWP (Barr, 2020b) and SIRU (Barr, 2021b).

3.0 Soil Regulatory Criteria

As presented in the SIRU (Barr, 2021a), PFAS compounds detected in soil are below the WDNR established direct contact residual contaminant levels (DC-RCLs). However, the WDNR regulatory framework around PFAS compounds in soil for the protection of groundwater is under development and soil-to-groundwater regulatory criteria have not yet been published.

For this supplemental investigation, groundwater residual contaminant levels (GW-RCLs) will be developed using recommended enforcement standard groundwater criteria recently published by the Wisconsin Department of Health Services (DHS) in Cycle 11 (DHS, 2020) along with the guidelines provided in NR 720.10 and WDNR Publication PUB-RR-890 (WDNR, 2014). The GW-RCLs will be developed for the same three PFAS compounds for which the WDNR has developed generic DC-RCLs: Perfluorooctanesulfonic acid (PFOS), Perfluorobutanesulfonic acid (PFBS) and Perfluorooctanoic acid (PFOA). The calculated GW-RCL criteria may be lower than current laboratory method detection limits (MDL).

The GW-RCLs will be developed using the partitioning equation provided in the Environmental Protection Agency (EPA) risk-based screening level (RSL) calculator for the soil to groundwater pathway as shown below.

$$SSL(mg/kg) = C_{water} \left(\frac{mg}{L} \right) \times \left[K_d \left(\frac{L}{kg} \right) + \frac{\left(\theta_w \left(\frac{L_{water}}{L_{soil}} \right) + \theta_a \left(\frac{L_{air}}{L_{soil}} \right) \times H' \right)}{\rho_b \left(\frac{1.5 kg}{L} \right)} \right]$$

where:

$$C_{water} \left(\frac{mg}{L} \right) = SL \left(\frac{ug}{L} \right) \times \left(\frac{1 mg}{1000 ug} \right) \times DAF$$

where:

$$SL \left(\frac{ug}{L} \right) = MCL \left(\frac{ug}{L} \right); RSL \left(\frac{ug}{L} \right); RML \left(\frac{ug}{L} \right); \text{ or } PRG \left(\frac{ug}{L} \right)$$

and:

$$\theta_a \left(\frac{L_{air}}{L_{soil}} \right) = n \left(\frac{L_{water}}{L_{soil}} \right) - \theta_w \left(\frac{0.3 L_{water}}{L_{soil}} \right);$$

$$n \left(\frac{L_{pore}}{L_{soil}} \right) = 1 - \frac{\rho_b \left(\frac{1.5 kg}{L} \right)}{\rho_s \left(\frac{2.65 kg}{L} \right)};$$

$$K_d \left(\frac{L}{kg} \right) = K_{oc} \left(\frac{L}{kg} \right) \times f_{oc} \left(\frac{0.002 g\text{-carbon}}{g\text{-soil}} \right), \text{ for organic compounds};$$

K_d values for inorganic compounds are listed in the user guide.

foc (fraction organic carbon in soil) g/g
 n (soil porosity) L_{pore}/L_{soil}
 ρ_s (soil particle density) kg/L
 θ_a (air-filled soil porosity) L_{air}/L_{soil}
 θ_w (water-filled soil porosity) L_{water}/L_{soil}
 T_w (groundwater temperature) °Celsius
 K (aquifer hydraulic conductivity) m/yr
 L (source length parallel to ground water flow) m
 d (mixing zone depth) m - site-specific
 d_a (aquifer thickness) m - site-specific
 DAF (dilution attenuation factor) unitless
 i (hydraulic gradient) m/m
 I (infiltration rate) m/yr
 ρ_b (dry soil bulk density) kg/L

A combination of generic input parameters obtained from the EPA web calculator, compound-specific partitioning coefficient values and DHS enforcement standard groundwater criteria will be used to develop the GW-RCLs. These calculated GW-RCLs will be used to evaluate risk to groundwater and establish delineation criteria for determining the extent of PFAS in soil as required by NR 716.11 (3) (a).

4.0 Sampling and Analysis Plan

The site investigation sampling and analysis plan incorporates the scoping requirements in NR 716.07 and the *Site Investigation Work Plan Checklist* (WDNR, 2019) along with a reliance on the existing body of knowledge related to PFAS properties and their fate and transport in soils (ITRC, 2020d, 2020e). The WDNR has not developed sampling guidance for PFAS sample collection (soil or groundwater) and has only recently provided laboratory certification for PFAS analysis.

The sampling plan will follow the same protocols, laboratory methods, QA/QC and SOPs as outlined in the original PFAS SIWP (Barr, 2020b). As described above, the objectives of this investigation are to further delineate and define the lateral extent of PFAS compounds in soil in the Incident impacted areas by comparing results to the calculated GW-RCL criteria. These results will also be used to update the Conceptual Site Model (CSM), evaluate potential migration pathways, assist and guide the future groundwater investigation and to determine if additional investigation, interim action measures and/or remedial action(s) are needed.

To accomplish these objectives, a phased investigation strategy will continue to collect data for further definition of the extent of PFAS compounds in soil as a result of the Incident.

The results of the previous PFAS soil investigation and the defined limits of the release as shown on Figure 3 were used to guide this phase of investigation and determine appropriate boring placement for lateral definition.

4.1 Investigation Area

The Incident and subsequent firefighting efforts resulted in the release of AFFF containing PFAS to pervious ground surfaces (Barr, 2021a). These compounds were largely contained onsite in containment dikes, stormwater, and fire water retention ponds and/or stormwater drainage features. The previous Incident related PFAS soil investigations have been performed in the impacted areas (Barr, 2020 and Barr, 2020b). Results of these investigations are summarized in the SIRU (Barr, 2021b).

The scope of this supplemental soil investigation will focus on determining the lateral extent of PFAS in soil at the boundaries of the Incident impacted ATF area and eastern end of the Stinson Avenue Ditch (SAD). The extent of PFAS contamination in soil will be considered defined based on a comparison of the PFAS laboratory concentrations in soil to the GW RCLs to be calculated as described above. To assess the Incident related lateral PFAS soil impacts above the calculated GW RCLs, additional borings will be placed around the perimeter of the ATF and the eastern end of SAD as shown in Figures 3, 4a, 4b and 4c.

The borings will be installed using a track mounted hydraulic probe at a time and location that allows access to the target locations and does not conflict with the ongoing refinery rebuild efforts. It is estimated that the borings will be installed during the fall of 2021 when rebuild activities in the target areas are largely complete.

4.2 Laboratory Analysis

To evaluate the potential Incident related PFAS impact to soil at the perimeter of the Incident-impacted area, samples from the perimeter borings will be analyzed for the 33 required PFAS compounds. Previous work on this project had included a list of 24 PFAS compounds, but since the start of this project Wisconsin now has identified a suite of 33 PFAS analytical compounds and a list of laboratories who are certified in Wisconsin for PFAS analysis. A Wisconsin certified laboratory and the suite of 33 PFAS compounds will be used moving forward with this investigation.

4.3 Data Evaluation

Analytical data from PFAS soil samples will be compared to the three WDNR developed generic DC-RCLs and the three calculated GW-RCLs. As described above, WDNR applies soil RCL criteria for the direct contact pathway (DC-RCL) at residential and industrial sites for several specific PFAS compounds. WDNR currently has no RCL criteria established for the soil / groundwater pathway (GW- RCL). The GW-RCLs will be calculated for three PFAS compounds using the procedure outlined above.

4.4 Methods

Field activities discussed in this section have been designed to provide the necessary data for completion of the investigation objectives defined above. Detailed descriptions of the planned investigation activities

are presented below. This section has been developed in accordance with the requirements of NR 716.09 (2) (f).

4.4.1 Project Health and Safety Plan

A project health and safety plan (PHASP) will be prepared for the investigation.

4.4.2 Standard Operating Procedures

The primary standard operating procedures (SOPs) that will be followed during this field investigation including Barr's SOP with specific PFAS information, *Collection of Per- and Polyfluorinated Alkyl Substances (PFAS) Samples*, were provided in the previous PFAS Investigation SIWP (Barr, 2020b).

PFAS compounds are present in many everyday items and have been widely used in products that are water resistant, stain resistant, heat resistant and/or oil resistant. Field personnel will be required to use specific sampling techniques, decontamination procedures, PFAS-free equipment and avoid wearing lotion, deodorant, cosmetics, sunscreen, waterproof clothing, stain-resistant clothing, and clothing washed in fabric softener when completing PFAS sampling field work. Updates to this work plan and associated SOPs will be prepared as needed for each subsequent phase of investigation work.

4.4.3 Soil Classification

Soil recovered during the investigation will be described in the field in accordance with the Universal Soil Classification System. Soils encountered will be described in accordance with ASTM-2488, *Standard Soil Practice for Description and Identification of Soils (Visual/Manual Method)*. Depth to water will be recorded, where encountered. Field representatives will document soil information in a project-dedicated field logbook or on field log data sheets.

4.4.4 Soil Borings

Up to 19 soil borings will be completed using a hydraulic probe in the ATF, refinery process, and SAD areas to evaluate PFAS soil impacts. Samples from the upper five feet will be collected using a 5-foot macro core sampler. Deeper samples will be collected using a dual tube or discreet sampling method to protect the deeper samples from cross-contamination.

The proposed sample locations presented on Figures 3, 4a, 4b, and 4c have been chosen to provide lateral definition of the affected areas. The borings will be completed during two (or more) separate mobilization events depending on site access and rebuild construction activities. Soil boring locations may vary from the planned locations (or be eliminated) depending on utility locations, accessibility in the field, or if obstructions prevent boring completion. Boreholes will be backfilled according to WDNR NR 141 requirements.

4.4.5 Sample Collection and Analysis

Up to seven representative soil samples from each soil boring will be collected for possible PFAS analysis. PFAS soil samples will be collected at vertical intervals as shown in Table 1, for a maximum of 127 soil

samples. The shallow sample intervals will be as follows: 0 to 0.3 ft., 0.5 to 1.0 ft., and 1.5 to 2.0 ft. at all boring locations to evaluate surficial soils. The next sample interval(s) by depth are calculated to correlate with the elevation of nearby previously collected soil samples with detectable concentrations of PFAS as shown on Table 1. Additional sample intervals are identified at 9.5 to 10 ft. and 14.5 to 15 ft. in most borings for vertical definition. The two borings adjacent to the Stinson Ave ditch will be shallower, with the deepest sample interval at 4.5 to 5 ft. The two upper samples, the correlating samples and the bottom sample from each soil boring will be analyzed for PFAS as identified on Table 1. If impacts are documented (via laboratory confirmation) in these samples, the next deeper sample will be analyzed for vertical definition. This approach will be used as needed for each deeper interval.

A summary of the proposed sampling network summary is presented in **Error! Reference source not found.**2. Soil sample collection, collection of PFAS samples, decontamination procedures, chain-of-custody documentation, and transport of samples will follow applicable Barr SOPs provided in the original SIWP (Barr, 2020b).

4.4.6 Sample Labeling and Numbering

Sample nomenclature will be represented by abbreviated letter designators, followed by a unique location number. Samples will be labeled according to the location from which they are collected. Standard designators are as follows: ATF = Asphalt Tank Farm; SAD = Stinson Avenue Ditch; FB = field blank, RB = rinse blank and FD = field duplicate.

4.4.7 Field Records

All field activities and data will be recorded daily in a dedicated field notebook or on dedicated field data collection forms. The Barr field technician will record work times and dates, field data (boring logs, field analytical data, sample depths, water levels, etc.), project health and safety information, internal Barr communications, client communications, decision-making processes and rationale, documentation of changes to the investigation scope, and any other observations or activities relevant to the project. Field investigation information will also be recorded as appropriate on the field forms.

4.4.8 Investigation Derived Waste

Plans for managing investigation-derived waste are being provided in accordance with NR 716.09 (2) (f) 7. Waste generated by this investigation will be disposed of in accordance with federal, state, and local regulations and Barr's SOP: *Investigative Derived Waste*.

4.4.9 Reporting

The supplemental investigation activities, analytical results and data evaluations will be summarized in an Investigation Report in accordance with NR 716.15. The report will summarize the data collected during the supplemental soil investigation phase and compare analytical results to current WDNR generic DC-RCL criteria and the calculated GW-RCL criteria. The report will include the following elements: introduction; property setting; investigation results; QA/QC procedures and results; a preliminary risk-screening evaluation; conclusions; and recommendations. Soil boring logs and a property map showing

the actual boring locations will be developed. Laboratory reports will also be attached to the report. Recommendations for future investigation work or response action plan development will be based on the results presented in the report.

4.5 Quality Assurance / Quality Control

Since this work is a supplement to the original PFAS soil investigation there are no updates to the original quality assurance and quality control plan presented in the original SIWP (Barr, 2020b) other than expanding the PFAS list to 33 compound and use of an analytical laboratory certified in Wisconsin for PFAS analysis. The field and laboratory Quality Assurance/Quality Control (QA/QC) procedures are defined in the SIWP (Barr, 2020b). The number of field QC samples for this phase of work are included in Table 2. Data will be reported to the laboratory MDL; however, MDL values may be above the calculated criteria due to limitations on currently available laboratory methods.

5.0 Schedule

Depending on site rebuild efforts and weather conditions, the investigation activities outlined above will begin within six weeks of receiving WDNR approval of this work plan. It is anticipated the supplemental investigation work can commence in the third quarter of 2021. Following the collection of samples, laboratory analysis will take approximately 3 to 4 weeks to complete.

Within 90 days of receiving laboratory results from this phase of work, an investigation report update will be prepared to summarize the results of the PFAS soil delineation investigation. If necessary, this report will make recommendations for additional investigation, interim action, or remedial action. Final schedules will be dependent on approval of this work plan by the WDNR, coordination with the contractors, weather conditions, facility accessibility during the refinery rebuild activities and receipt of analytical results.

Tables

Table 1	Sample Inventory Summary
Table 2	Sample Network Summary

Figures

Figure 1	Site Location
Figure 2	Site Features
Figure 3	Previous PFAS Soil Sample Results
Figure 4a	Proposed PFAS Soil Sample Location
Figure 4b	Proposed PFAS Soil Sample Location
Figure 4c	Proposed PFAS Soil Sample Location

CERTIFICATION

"I, Lynette M. Carney, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03(1), Wis. Adm. Code, am registered in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code or licensed in accordance with the requirements of ch. GHSS 3, Wis. Adm. Code; and that, to the best of my knowledge, all of the information contained in this document is correct, and the document was prepared in compliance with all applicable requirements in Chapters NR 700 to 726, Wis. Adm. Code."



Lynette M. Carney, PG
Reg #: 1138

09/07/2021

Date

References

- Barr, 2019. *Site Investigation Work Plan, Superior Refinery April 26, 2018 Fire, BRRTS Number 02-16-581317*, Prepared for Superior Refining Company LLC. June 2019.
- Barr, 2020. *Site Investigation Report, Superior Refinery April 26, 2018 Incident, BRRTS Number 02-16-581317*, Prepared for Superior Refining Company LLC. February 2020.
- Barr, 2020b. *PFAS Soil Site Investigation Work Plan, Superior Refinery April 26, 2018 Incident, BRRTS Number: 02-16-581317*, prepared for Superior Refinery Company, LLC. July 2020.
- Barr, 2021a. *Interim Action Report – Hydrocarbon and PFAS, Superior Refinery April 26, 2018 Incident, BRRTS Number: 02-16-581317*, prepared for Superior Refinery Company, LLC. February 2021.
- Barr, 2021b. *Site Investigation Report Update – Hydrocarbon and PFAS, Superior Refinery April 26, 2018 Incident, BRRTS Number: 02-16-581317*, prepared for Superior Refinery Company, LLC. February 2021.
- ITRC, 2020d. Per- and Polyfluoroalkyl Substances (PFAS), Technical and Regulatory Guidance Document PFAS-1, Section 5 Fate and Transport, Interstate Technology & Regulatory Council, PFAS Team, Washington D.C., April 2020.
- WDNR, 2014. *Soil Residual Contaminant Level Determinations Using the U.S. EPA Regional Screening Level Web Calculator*, Publication PUB-RR-890, January 23, 2014.
- WDNR, 2019. *Site Investigation Work Plan Preparation Checklist*, WDNR Remediation and Redevelopment Program NR 700 Process Document RR-096. April 2019.
- WDNR, 2019b. Wisconsin Department of Natural Resources Notice of Final Guidance & Certification, Document ID EA-19-0001, Wisconsin PFAS Aqueous (Non-Potable Water) and Non-Aqueous Matrices Method Expectations, December 16, 2019.
- WDNR, 2020. WDNR Letter with Site Investigation Report Review Comments, BRRTS ID 02-16-581317, Wisconsin Department of Natural Resources, June 25, 2020.
- WDNR, 2020b. WDNR Site Investigation Work Plan review and approval letter, BRRTS ID 02-16-581317, Wisconsin Department of Natural Resources, July 29, 2020.
- WDNR, 2021. WDNR Letter with Site Investigation Report Update Review Comments, BRRTS ID 02-16-581317, Wisconsin Department of Natural Resources, April 22, 2021.

Tables

Table 1
Sample Interval Summary
PFAS Soil Investigation Work Plan – Supplement A
Superior Refinery April 2018 Incident
Superior, Wisconsin

Proposed Boring and Sample Intervals			
Boring ID	Surface Elevation (ft)	Interval Top (ft bgs)	Interval Bottom (ft bgs)
PFAS ATF-1	668	0	0.3
		0.5	1
		1.5	2
		7.5	8
		8.5	9
		9.5	10
		14.5	15
PFAS ATF-2	667	0	0.3
		0.5	1
		1.5	2
		6.5	7
		7.5	8
		9.5	10
		14.5	15
PFAS ATF-3	667	0	0.3
		0.5	1
		1.5	2
		6.5	7
		7.5	8
		9.5	10
		14.5	15
PFAS ATF-4	666	0	0.3
		0.5	1
		1.5	2
		5.5	6
		6.5	7
		9.5	10
		14.5	15
PFAS ATF-5	667	0	0.3
		0.5	1
		1.5	2
		6.5	7
		7.5	8
		9.5	10
		14.5	15

Proposed Boring and Sample Intervals			
Boring ID	Surface Elevation (ft)	Interval Top (ft bgs)	Interval Bottom (ft bgs)
PFAS ATF-6	667	0	0.3
		0.5	1
		1.5	2
		6.5	7
		7.5	8
		9.5	10
		14.5	15
PFAS ATF-7	664	0	0.3
		0.5	1
		1.5	2
		4.5	5
		6	6.5
		9.5	10
		14.5	15
PFAS ATF-8	664	0	0.3
		0.5	1
		1.5	2
		4.5	5
		6	6.5
		9.5	10
		14.5	15
PFAS ATF-9	663	0	0.3
		0.5	1
		1.5	2
		3.5	4
		5	5.5
		9.5	10
		14.5	15
PFAS ATF-10	662	0	0.3
		0.5	1
		1.5	2
		2.5	3
		4	4.5
		9.5	10
		14.5	15

Proposed Boring and Sample Intervals			
Boring ID	Surface Elevation (ft)	Interval Top (ft bgs)	Interval Bottom (ft bgs)
PFAS ATF-11	663	0	0.3
		0.5	1
		1.5	2
		3.5	4
		5	5.5
		9.5	10
		14.5	15
PFAS ATF-12	662	0	0.3
		0.5	1
		1.5	2
		2.5	3
		4	4.5
		9.5	10
		14.5	15
PFAS ATF-13	661	0	0.3
		0.5	1
		1.5	2
		2.5	3
		4	4.5
		9.5	10
		14.5	15
PFAS ATF-14	661	0	0.3
		0.5	1
		1.5	2
		2.5	3
		4	4.5
		9.5	10
		14.5	15
PFAS ATF-15	658	0	0.3
		0.5	1
		1.5	2
		4.5	5
		9.5	10

Proposed Boring and Sample Intervals			
Boring ID	Surface Elevation (ft)	Interval Top (ft bgs)	Interval Bottom (ft bgs)
PFAS ATF-16	664	0	0.3
		0.5	1
		1.5	2
		4.5	5
		6	6.5
		9.5	10
PFAS ATF-17	664	14.5	15
		0	0.3
		0.5	1
		1.5	2
		4.5	5
		6	6.5
PFAS SAD-1	652	9.5	10
		14.5	15
		0	0.3
		0.5	1
		1.5	2
PFAS SAD-2	649	3	3.5
		4.5	5
		0	0.3
		0.5	1
		1.5	2

Proposed sample interval will be collected but only analyzed if impacts are documented in the interval above (via laboratory confirmation)

Proposed sample interval correlates with PFAS detections in borings from the first phase of the soil investigation.

Note: Boring surface elevations from City of Superior LiDAR data collected in 2019

Table 2
Sample Network Summary
PFAS Soil Investigation Work Plan – Supplement A
Superior Refinery April 2018 Incident
Superior, Wisconsin

Sample Type	Laboratory Analytical Parameter	Laboratory Method	Estimated Maximum Number of Investigative Samples ¹	Grab Sample	Quality Assurance/Quality Control (QA/QC) Samples				
					Rinsate Blank (RB) ²	Field Duplicate (FD)	Equipment Blank (EB)	Field Blank (FB)	Total
Soil Boring	PFAS	ASTM D7968(M)	127	X	0	2	2	2	133

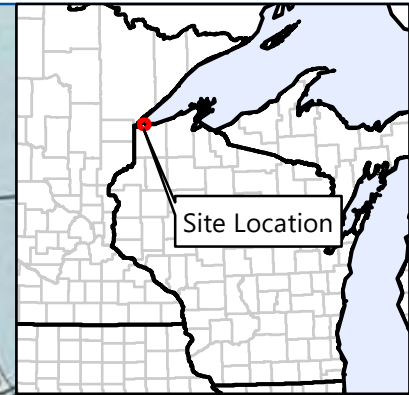
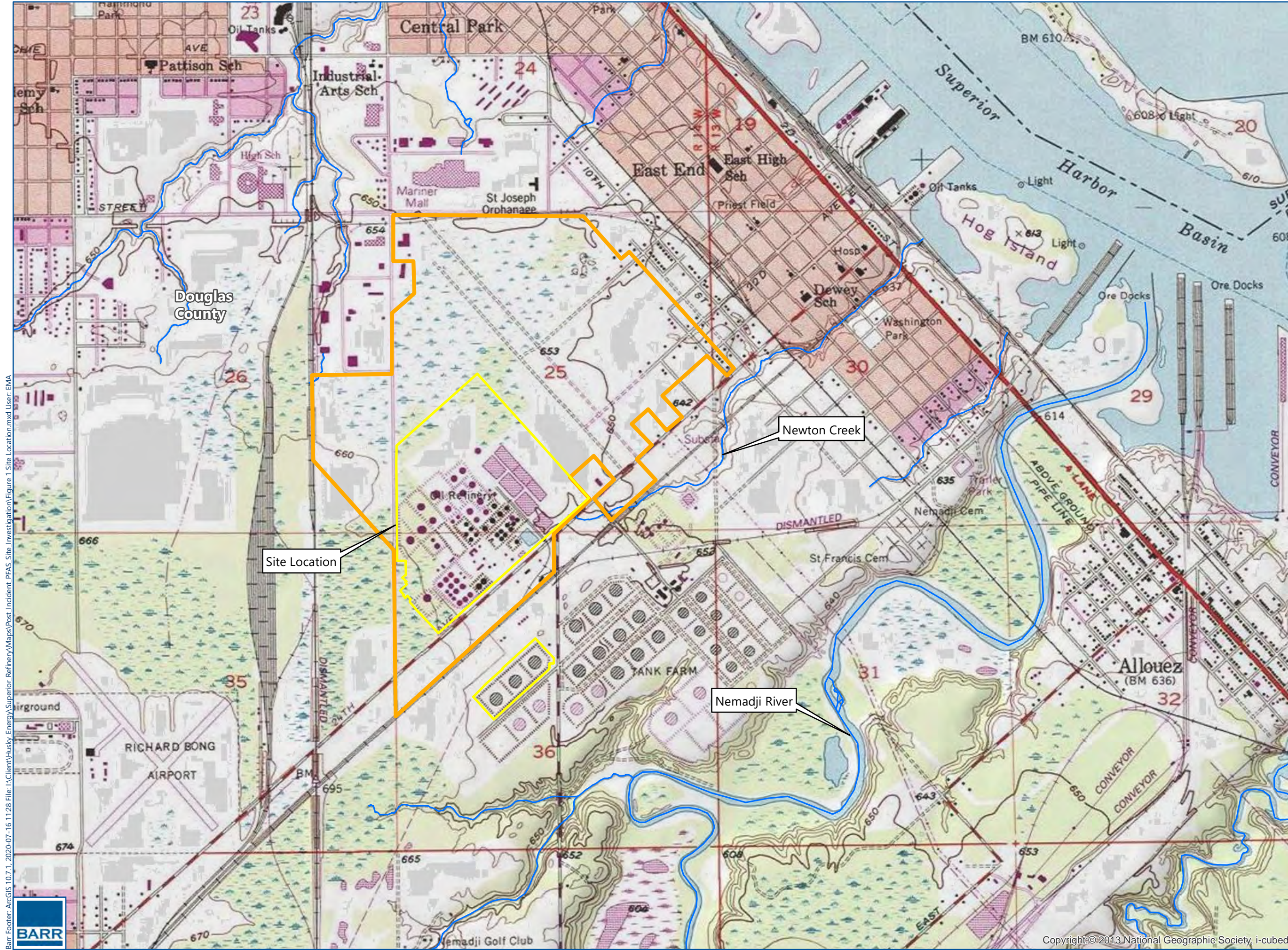
PFAS - Per and polyfluoroalkyl substances

Field screening parameters at each sampling location will include visual, distinguishable odor, and soil organic vapor headspace.

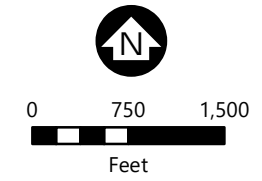
¹Actual number of samples will be determined based on field observations and/or locations as described in the Work Plan.

²An equipment blank was collected prior to the initial sampling event in 2020 and is PFAS-free. The same equipment will be used for this supplement event.

Figures



- Approximate SRC Property Boundaries for Contiguous Operations
- Approximate Fenceline Boundaries for Refining-Related Activities






SITE LOCATION
 Superior Refining Company LLC (SRC)
 Superior, WI
FIGURE 1

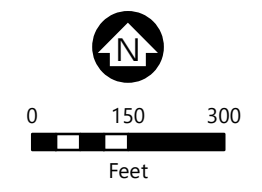
Barr Footer: ArcGIS 10.7.1, 2020-07-16 11:28 File: I:\Client\Husky Energy\Superior Refinery\Maps\Post-Incident PFAS_Site_Investigation\Figure 1 Site Location.mxd User: EMA



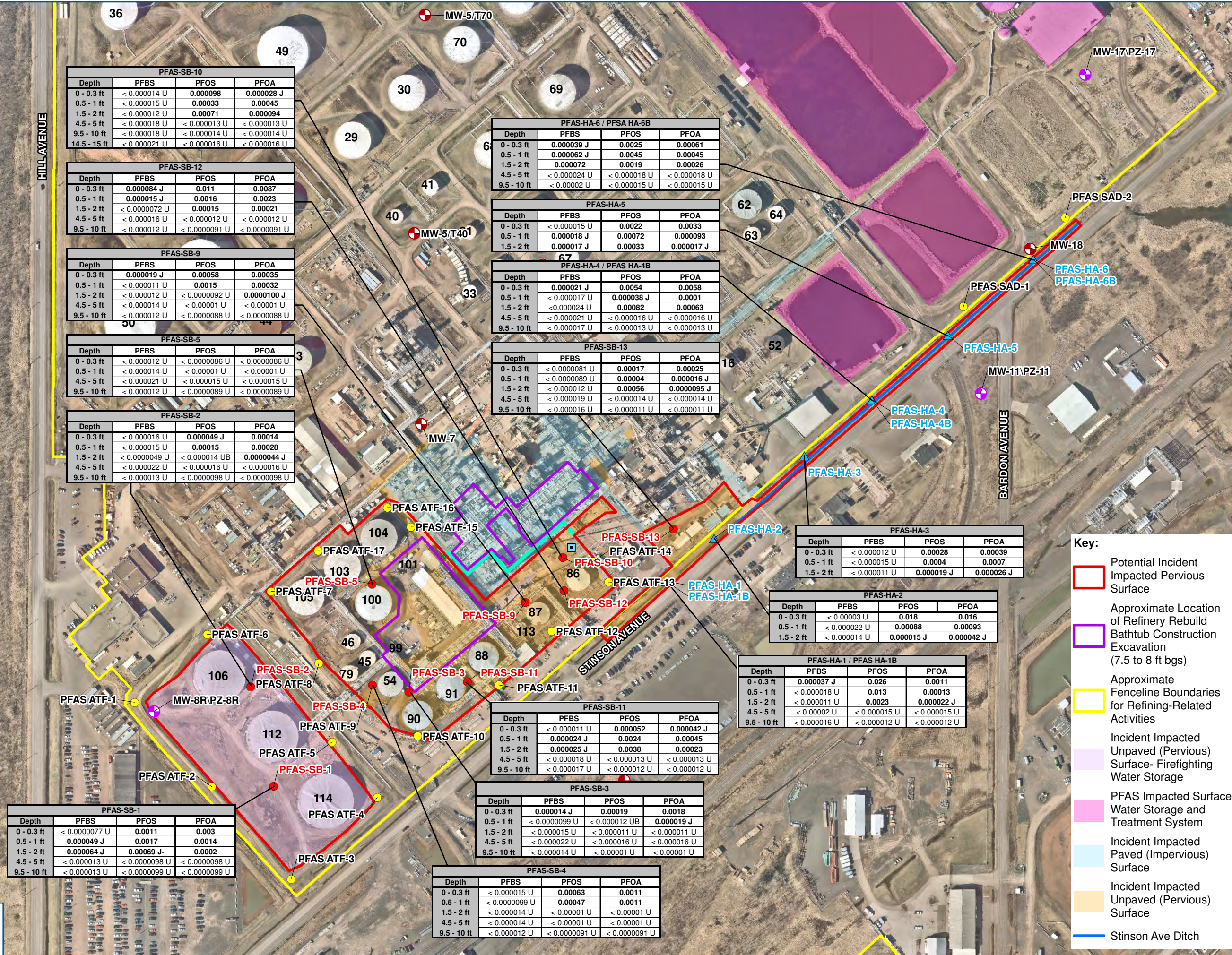
Copyright © 2013 National Geographic Society, i-cubed



-  Process Unit
-  Battery Limits
-  Approximate Fence Line Boundaries for Refining-Related Activities



SITE FEATURES
REFINING-RELATED ACTIVITIES
 Superior Refining Company LLC (SRC)
 Superior, WI
FIGURE 2



- Proposed PFAS Source Monitoring Well Location
- Proposed PFAS Soil Boring
- ⊕ Existing Monitoring Well
- ⊕ Existing Monitoring Well & Piezometer Pair
- PFAS Soil Boring Location (Sept 4-5, 2020)
- ▲ PFAS Hand Auger Location (PFAS-HA-# Sept 1, 2020 PFAS-HA-#B Oct 16, 2020)
- Definition Boundary-Edge of Post-Incident
- Rebuild Construction Excavation (Sheet Pile Wall)

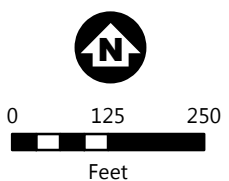
Incident occurred April 26, 2018

We propose to have a temporary gravel ramp built to facilitate access for the drill rig at the following locations: PFAS ATF-8, PFAS ATF-11, PFAS ATF-12, PFAS ATF-14, PFAS ATF-15, and PFAS ATF-16.

Key:
Analytical results are reported in milligrams per kilogram (mg/kg) or parts per million (ppm)
U = undetected

Note:
Analytical results are presented for those PFAS compounds with established Wisconsin residual contaminant level (RCL) criteria. Detections are presented in bold. No PFAS compounds were detected in exceedance of Wisconsin RCL criteria.

- Potential Incident Impacted Pervious Surface
- Approximate Location of Refinery Rebuild Bathtub Construction Excavation (7.5 to 8 ft bgs)
- Approximate Fenceline Boundaries for Refining-Related Activities
- Incident Impacted Unpaved (Pervious) Surface- Firefighting Water Storage
- PFAS Impacted Surface Water Storage and Treatment System
- Incident Impacted Paved (Impervious) Surface
- Incident Impacted Unpaved (Pervious) Surface
- Stinson Ave Ditch

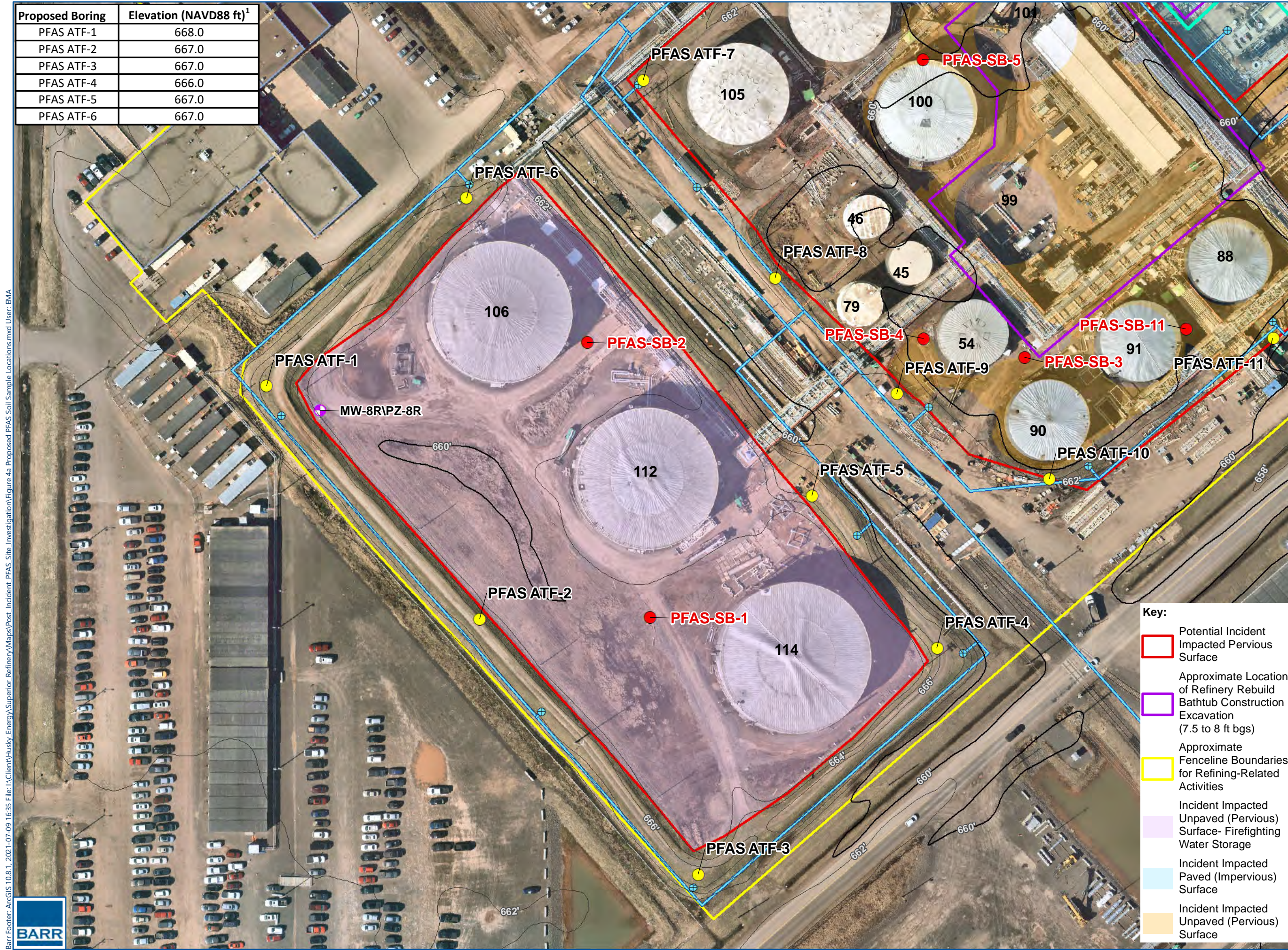


PREVIOUS PFAS SOIL SAMPLE RESULTS
Superior Refining Company LLC (SRC)
Superior, WI
FIGURE 3



Proposed Boring	Elevation (NAVD88 ft) ¹
PFAS ATF-1	668.0
PFAS ATF-2	667.0
PFAS ATF-3	667.0
PFAS ATF-4	666.0
PFAS ATF-5	667.0
PFAS ATF-6	667.0

Barr Footer: ArcGIS 10.8.1, 2021-07-09 16:35 File: I:\Client\Husky_Energy\Superior_Refinery\Maps\Post_Incident_PFAS_Site_Investigation\Figure 4a Proposed PFAS Soil Sample Locations.mxd User: BMA



- Proposed PFAS Soil Boring
- 10-Foot Contours
- 2-Foot Contours
- Existing Monitoring Well & Piezometer Pair
- PFAS Soil Boring Location (Sept 4-5, 2020)
- PFAS Hand Auger Location (PFAS-HA-# Sept 1, 2020; PFAS-HA-#B Oct 16, 2020)
- Definition Boundary-Edge of Post-Incident Rebuild Construction Excavation (Sheet Pile Wall)
- Hydrant
- Fire Main

Incident occurred April 26, 2018

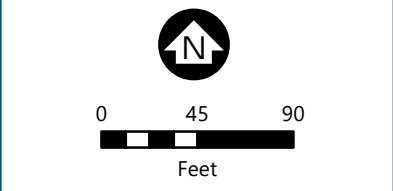
We propose to have a temporary gravel ramp built to facilitate access for the drill rig at the following locations: PFAS ATF-8, PFAS ATF-11, PFAS ATF-12, PFAS ATF-14, PFAS ATF-15, and PFAS ATF-16.

Key:

- Potential Incident Impacted Pervious Surface
- Approximate Location of Refinery Rebuild Bathtub Construction Excavation (7.5 to 8 ft bgs)
- Approximate Fenceline Boundaries for Refining-Related Activities
- Incident Impacted Unpaved (Pervious) Surface- Firefighting Water Storage
- Incident Impacted Paved (Impervious) Surface
- Incident Impacted Unpaved (Pervious) Surface

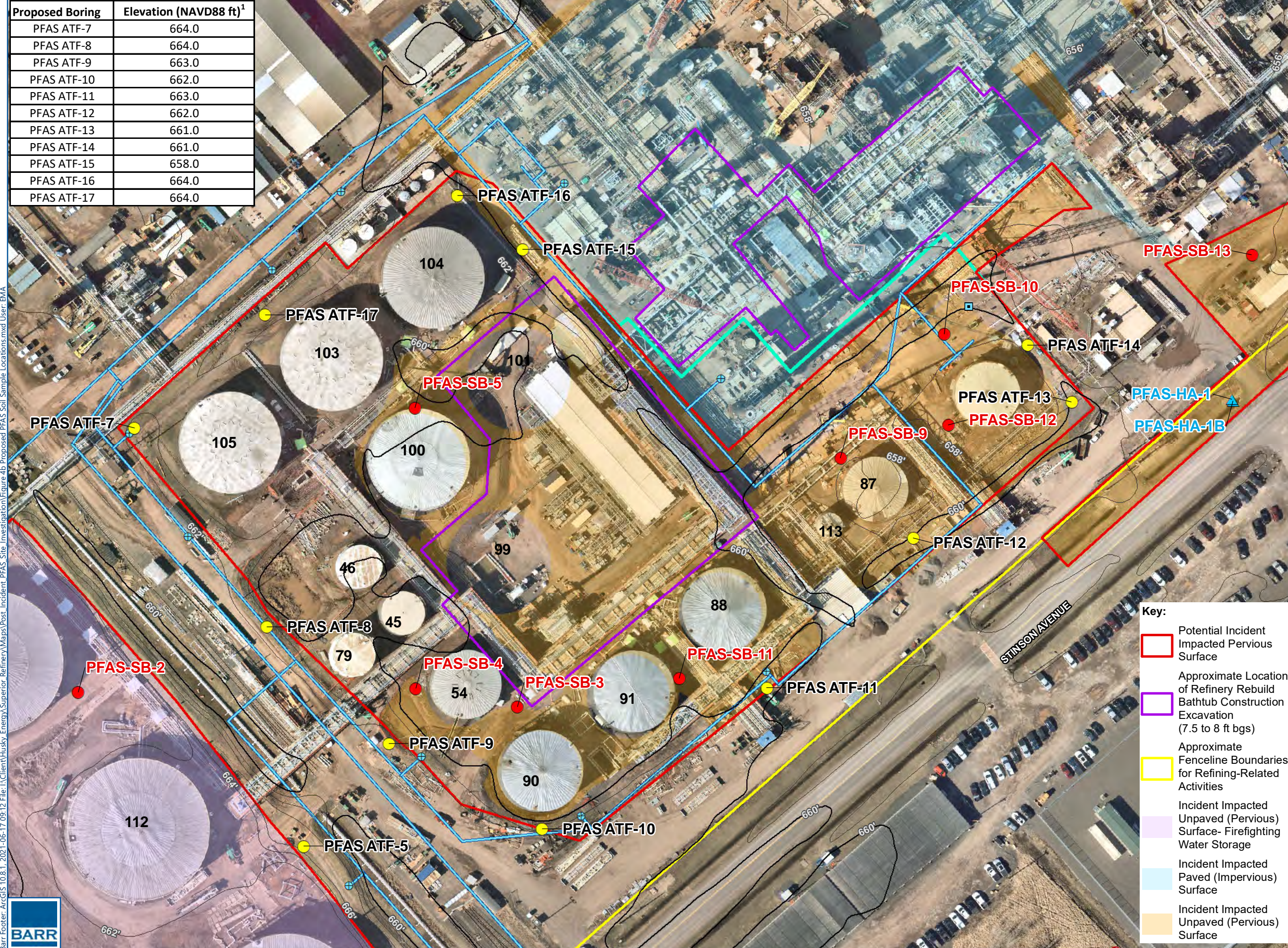
Key:
ATF = Asphalt Tank Farm

¹Elevation data from City of Superior LIDAR data collected in 2019.



PROPOSED PFAS SOIL SAMPLE LOCATIONS
Superior Refining Company LLC (SRC)
Superior, WI
FIGURE 4a

Proposed Boring	Elevation (NAVD88 ft) ¹
PFAS ATF-7	664.0
PFAS ATF-8	664.0
PFAS ATF-9	663.0
PFAS ATF-10	662.0
PFAS ATF-11	663.0
PFAS ATF-12	662.0
PFAS ATF-13	661.0
PFAS ATF-14	661.0
PFAS ATF-15	658.0
PFAS ATF-16	664.0
PFAS ATF-17	664.0



- Proposed PFAS Source Monitoring Well Location
- Proposed PFAS Soil Boring
- PFAS Soil Boring Location (Sept 4-5, 2020)
- ▲ PFAS Hand Auger Location (PFAS-HA-# Sept 1, 2020; PFAS-HA-#B Oct 16, 2020)
- 10-Foot Contours
- 2-Foot Contours
- Definition Boundary-Edge of Post-Incident Rebuild Construction Excavation (Sheet Pile Wall)
- ⊕ Hydrant
- Fire Main

Incident occurred April 26, 2018

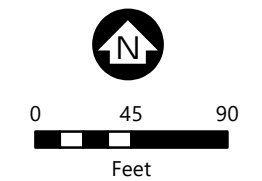
We propose to have a temporary gravel ramp built to facilitate access for the drill rig at the following locations: PFAS ATF-8, PFAS ATF-11, PFAS ATF-12, PFAS ATF-14, PFAS ATF-15, and PFAS ATF-16."

Key:

- Potential Incident Impacted Pervious Surface
- Approximate Location of Refinery Rebuild Bathtub Construction Excavation (7.5 to 8 ft bgs)
- Approximate Fenceline Boundaries for Refining-Related Activities
- Incident Impacted Unpaved (Pervious) Surface- Firefighting Water Storage
- Incident Impacted Paved (Impervious) Surface
- Incident Impacted Unpaved (Pervious) Surface

Key:
ATF = Asphalt Tank Farm

¹Elevation data from City of Superior LiDAR data collected in 2019.



PROPOSED PFAS SOIL SAMPLE LOCATIONS
Superior Refining Company LLC (SRC)
Superior, WI
FIGURE 4b



Proposed Boring	Elevation (NAVD88 ft) ¹
PFAS SAD-1	652.0
PFAS SAD-2	649.0



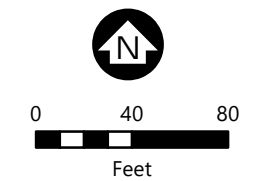
- Proposed PFAS Soil Boring
- ⊕ Existing Monitoring Well
- ⊕ Existing Monitoring Well & Piezometer Pair
- PFAS Soil Boring Location (Sept 4-5, 2020)
- ▲ PFAS Hand Auger Location (PFAS-HA-# Sept 1, 2020; PFAS-HA-#B Oct 16, 2020)
- ~ 10-Foot Contours
- ~ 2-Foot Contours

Incident occurred April 26, 2018

Key:
SAD = Stinson Avenue Ditch

¹Elevation data from City of Superior LiDAR data collected in 2019.

- Key:**
- Potential Incident Impacted Pervious Surface
 - Approximate Fence Line Boundaries for Refining-Related Activities
 - PFAS Impacted Surface Water Storage and Treatment System
 - Incident Impacted Paved (Impervious) Surface
 - Incident Impacted Unpaved (Pervious) Surface
 - Stinson Ave Ditch



PROPOSED PFAS SOIL SAMPLE LOCATIONS
Superior Refining Company LLC (SRC)
Superior, WI
FIGURE 4c

Barr Footer: ArcGIS 10.8.1, 2021-06-16 15:35 File: I:\Client\Husky Energy\Superior Refinery\Maps\Post Incident\PFAS Site Investigation\Figure 4c Proposed PFAS Soil Sample Locations.mxd User: EMA

